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COMMÉMORATION

DU

BICENTENAIRE DE LA NAISSANCE

DE

LAVOISIER

sous le haut Patronage de Monsieur le Ministre de l'Éducation Nationale

---

ALLOCUTIONS

prononcées le 11 Juin 1943 à la Séance commune

de la Société Chimique de France
de la Société Française de Physique
de la Société de Chimie Physique
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PARIS

SIÈGE DE LA SOCIÉTÉ : 28, RUE SAINT-DOMINIQUE (7e)
MASSON ET Cie, DÉPOSITAIRE
LIBRAIRES DE L'ACADÉMIE DE MÉDECINE
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LIBRAIRES DE L'ACADÉMIE DE MÉDECINE

120, Boulevard Saint-Germain, (6e)

[From the Proceedings of the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Vol. XXVIII, Saratoga Meeting, August, 1879.]

ON THE SUGAR CONTENT OF THE SAP OF THE MAPLE TREE AND THE PRESSURE OF THE SAME.

By H. W. WILEY, of Lafayette, Indiana.

I was unable to find, in the limited literature at my command, any exact statement of the percentage of sugar in the maple sap.

Farmers state generally that 40 gallons of water are required to make one gallon of molasses.

As the maple syrup usually sent into market contains but little over 50 per cent. sugar it would seem that, if the general idea given above be true, there is but little more than 1 per cent. sugar in the sap.

The determinations of sugar were made by the new half-shadow polariscope manufactured by Schmidt & Haensch, Berlin.

The orchard from which the specimens were taken is an old one which has been in use more than fifty years. It is situated two miles west of Lafayette.

My first determinations were made on the 21st of March after two days of a moderately hard freeze.

Specimens of sap were taken from twelve different trees selected so as to represent in size, shape, age, etc., the average growth of the grove.

Following are the percentages of sugar obtained. I also give specimens taken from the same trees four days later, March 25, after two days and nights constant running.

Nos.	Per cent. March 21.	Per cent. March 25.
1	3·95	3·44
2	2·95	2·63
3	3·26	2·80
4	2·70	2·34
5	2·70	2·60
6	3·20	2·42
7	2·51	2·00
8	1·95	1·87
9	3·08	2·00
10	2·67	2·34
11	2·70	2·11
12	3·51	2·74

I.

PROGRESSIVE AGRICULTURE.

By C. L. INGERSOLL,
Professor of Agriculture at Purdue University.

II.

THE RELATION OF SCIENCE TO AGRICULTURE.

By HARVEY W. WILEY,
Professor of Chemistry at Purdue University.

Reprinted from Proceedings State Board of Agriculture.

INDIANAPOLIS:
DOUGLASS & CARLON, PRINTERS AND BINDERS.
1880.

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By C. L. INGERSOLL,
Professor of Agriculture at Purdue University.

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THE RELATION OF SCIENCE TO AGRICULTURE.

By HARVEY W. WILEY,
Professor of Chemistry at Purdue University.

Reprinted from Proceedings State Board of Agriculture.

INDIANAPOLIS:
DOUGLASS & CARLON, PRINTERS AND BINDERS.
1884.

[From the PROCEEDINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Vol. XXX, Cincinnati Meeting, August, 1881.]

MIXED SUGARS. By H. W. WILEY, of Lafayette, Ind.

MIXED sugars are made of cane sugar and *amylose* (starch sugar). Within a few years the mixed sugar industry has advanced from a small beginning to a business of considerable importance. It is difficult to get accurate data of the amounts of this sugar made. Manufacturers and dealers are extremely reticent on the whole subject, and often refuse to talk about it at all. I have, however, after considerable trouble, been able to get at the figures which will give at least an approximate estimate.

The principal centres of the grape sugar industry are Brooklyn and New York, Buffalo and Peoria. From a careful comparison of the data which I have been able to collect, I place the daily

[1] The paper is published in full in "Science" for Oct. 1, 1881.

TRIBUTE TO THE MEMORY

OF

LEWIS OWENS.

MEMORIAL EXERCISES AT PURDUE UNIVERSITY.

From the Lafayette Journal, April 7, 1881.

At the opening of the University on Tuesday morning, President White announced in fitting terms the death of Lewis Owens, of the Class of 1880, and added that, on the following morning a half-hour would be devoted to exercises of a memorial character. In accordance with this announcement, the usual roll-call yesterday was followed by a brief and appropriate memorial service. The President stated that Professors Wiley and Herron had filled their respective chairs during the five years of Mr. Owen's connection with the University as a student, and they had been requested to give expression to the high esteem in which the departed student and graduate was universally held.

Dr. H. W. Wiley spoke as follows:

It was my good fortune to be intimately acquainted with Mr. Owens during his entire college course. It was with the most profound sorrow that I heard of his death.

He was a natural gentleman. His instincts always led him in a direction which many others take only at the dictates of reason. To be courteous and obliging was with him no acquired art, but a natural gift.

In many respects Mr. Owens was a model student. He could see and comprehend. He had a bright intellect, a sound judgment, and a most admirable industry. His mind was neither warped by prejudice nor dwarfed by bigotry. His ear was ever open to the voice of reason, and his judgment accessible to the appeals of wisdom.

It seems to me that it is something in honor of the memory of a student to be able to say that during his entire career, he was never reprimanded for misconduct; never suspected of any action low or mean. And this is doubly the case when it can be added that this good conduct, this nobility of action, was not due to any fear of detection and punishment, but was the spontaneous outgrowth of an honest and honorable heart. His, indeed,

SORGHUM,

ITS SUCCESS AND VALUE.

BY PROF. H. W. WILEY,
STATE CHEMIST.

Read Before the Annual Agricultural Association,
January, 1883.

INDIANAPOLIS:
WM. B. BURFORD, PRINTER, LITHOGRAPHER AND BINDER.
1883.

Article by H.A. Huston on the Influence of time and temperature on the amount of P_2O_5 dissolved by Citrate of ammonia from commercial fertilizers on page 9.

REPORT

ON

COMMERCIAL FERTILIZERS,

READ BEFORE THE INDIANA AGRICULTURAL ASSOCIATION.

BY

PROFESSOR H. W. WILEY,

State Chemist.

INDIANAPOLIS:
WM. B. BURFORD, PRINTER, LITHOGRAPHER AND BINDER.
1883.

LOUISIANA

SUGAR PLANTERS' ASSOCIATION.

REGULAR MONTHLY MEETING, DECEMBER 11, 1884.

NEW ORLEANS, Dec. 11, 1884.

The regular monthly meeting of the Louisiana Sugar Planters' Association, was held at the Sugar Exchange, at 7½ p. m., this date, Hon. D. F. Kenner, President, in the chair.

On motion, reading of minutes of last meeting was dispensed with.

The Secretary then submitted a circular letter from Dr. A. Duperier, of Iberia parish, about the Yaryan apparatus erected in his sugar house, and an invitation to planters to visit the same.

Mr. John Dymond, chairman of the Executive Committee, stated that he had visited Gov. Warmoth's plantation, to see the Newell cane shredder, and it worked perfectly. By its aid, 80 per cent. extraction had been obtained.

The Chair inquired, how had they determined the extraction, and the reply was, that two chemists were on the ground, keeping a record of all work done.

Mr. Emile Rost stated that he had visited Edmee plantation, last season, to see a cane shredder work, having been made by Messrs. Morris, Trasker & Co., and the mill would not take the cane from it.

Mr. E. J. Gay asked if any one had visited the Yaryan apparatus, when a negative reply was given.

The President then introduced Prof. H. W. Wiley, chief Chemist of the Agricultural Department at Washington, just arrived from California, where he had examined the condition of the beet and sorgho sugar industries, who delivered the following address:

THE SUGAR PROBLEM.

AN ADDRESS,
DELIVERED BEFORE THE LOUISIANA SUGAR PLANTERS' ASSOCIATION, BY PROF. H. W. WILEY, DEC. 11, 1884.

Mr. President and Gentlemen:

It seems like carrying "coals to New Castle" or sending sand to Sahara, for me to speak to you on

THE

ECONOMICAL ASPECTS

OF

AGRICULTURAL CHEMISTRY.

AN ADDRESS

BEFORE THE

American Association for the Advancement of Science,

AT THE BUFFALO MEETING,

AUGUST, 1886.

BY HARVEY W. WILEY,
VICE-PRESIDENT, SECTION C.

[From the Proceedings of the American Association for the Advancement of Science, Vol. XXXV.]

CAMBRIDGE:
JOHN WILSON AND SON.
University Press.
1886.

[From Bulletin No. 2, Chemical Society of Washington.]

Our Sugar Supply,

BY

Compliments of H. W. WILEY.

Annual Address of President of The Chemical Society of Washington.

WASHINGTON:
JAN., 1887.

[Reprinted from The Journal of Analytical Chemistry.
Vol. III, Part 1. January, 1889.]

QUANTITATIVE ESTIMATION OF ADULTERANTS IN LARD.

By H. W. Wiley.

The progress of qualitative analysis has rendered it possible for the skilled analyst at the present time to detect with certainty every commercial adulteration of lard. It is probably true that laboratory adulterations amounting to only 2 or 3 per cent. may escape the quest of the skilled chemist; but when adulterations are made for commercial purposes the amount of adulterant added is always in sufficient quantities to render its qualitative detection easy. For quantitive purposes, however, the matter is not so readily determined. For practical purposes the two adulterants which are used in making compound lards are cotton oil and the stearines derived by pressing partially crystallized lard or tallow. The first of these stearines is usually called prime lard stearine and the second oleostearine. The following methods have been proposed for the quantitative detection of these adulterants:

1. The amount of insoluble residue obtained upon treating the samples with a mixture of ether and alcohol. This method, as was shown in the celebrated trial of McGeoch, Everingham & Co. against Fowler Bros. in Chicago, was wholly unreliable, and it may be dismissed from the category of useful methods.

2. *The specific gravity.*—This method has great value and may be relied upon to give approximate results.

3. *Absorption of iodine.*—This method would be an excellent one for determining the amount of cotton oil added to a lard provided that no stearine was present; but the careful addition of cotton oil and stearine will enable the mixer to make a lard whose iodine number is almost identical with that of the pure article.

4. *The rise of temperature which samples undergo when mixed with sulphuric acid.*—This process divised by Manmene may give valuable information in regard to the quantity of adulterants

[Reprinted from The Journal of Analytical Chemistry.
Vol. III, Part 2. April, 1889.]

[Contributions from the Laboratory of the U. S. Dept. of Agriculture.]

Quantitative Determination

OF

Adulterants in Lard.

By H. W. Wiley.

Second Paper.

In a former communication* I spoke of the use of the refractive index in estimating the probable percentage of adulteration in lard and the value of this method when used alone for this pur-

*Vol. 3, p. 44.

Departamento de Agricultura de los Estados Unidos.

MEMORIAS

SOBRE EL

USO DEL MAÍZ EN EUROPA

Y LA

POSIBILIDAD DE EXTENDER SU CONSUMO.

---

1. EL VALOR DEL MAÍZ COMO ALIMENTO,
Por el Doctor H. W. WILEY, Químico en Jefe.
2. LA INDUSTRIA DEL MAÍZ EN LOS ESTADOS UNIDOS,
Por B. W. SNOW, Auxiliar de la Sección de Estadística.

Publicadas bajo la autoridad del Secretario de Agricultura.

WASHINGTON:
IMPRENTA DEL GOBIERNO.
1892.

Ministère de l'Agriculture des Etats-Unis.

RAPPORT

SUR L'USAGE ET LES

Possibilités de l'Extension du Maïs (Blé d'Inde) en Europe.

---

1. Importance du Maïs comme aliment
par le DR. H. W. WILEY, Directeur du Laboratoire de Chimie,

ET

2. Industrie du Blé d'Inde aux Etats-Unis
par B. W. SNOW, Statisticien adjoint.

Publié sous les auspices du Ministre de l'Agriculture.

WASHINGTON:
IMPRIMERIE DU GOUVERNEMENT.
1892.

[REPRINTED FROM THE JOURNAL OF THE AMERICAN CHEMICAL SOCIETY. VOL. XV, NO. 2. FEBRUARY, 1893.]

[CONTRIBUTIONS FROM THE CHEMICAL LABORATORY OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.—NO. 2.]

SOME PRODUCTS OF CASSAVA.[1]

BY E. E. EWELL AND H. W. WILEY.

SOME four years ago one of us[2] described a plant which has been grown in Florida for many years under the name of sweet cassava, the botanical name of which is *Jatropha manihot* or *Aipi*. From the analyses made at the time it was found that the plant was valuable for feeding purposes, being very rich in carbohydrates, although rather poor in albuminoids. Lately the subject has been studied to a much greater extent, with the object of preparing as large a number of products as possible from the plant, with the determination of their chemical properties and food values.

A large quantity of the root was obtained from Florida, the bark separated from the root, and each subjected to analysis with the following results:

	Peeled root.		Fiber after removal of starch.	Bark of root.	
	Fresh.	Dry.	Dry.	Fresh.	Dry.
Moisture	61.30	....	....	61.30	....
Ether extract	0.17	0.44	0.30	0.66	1.70
Albuminoids (nitrogen × 6.35)	0.64	1.66	1.02	2.29	5.91
Starch (diastase extract inverted with HCl)	30.98	80.06	64.64	....	....
Fiber	0.88	2.26	10.68	3.83	9.89
Ash	0.51	1.31	1.42	2.02	5.23
Undetermined	5.52	14.27	21.94	29.90	77.27
	100.00	100.00	100.00	100.00	100.00

With the starch in the analysis given above is reckoned also the soluble carbohydrates, consisting almost exclusively of cane sugar, and of which in an analysis of another portion of the dry substance as high as seventeen per cent. was found. The undetermined portion consists of the digestible fiber and carbohydrates of the pentose series. The pentosans in the fiber were determined by the furfurol process as modified by Krug, and the amount in the air-dried material was found to be 3.92 per cent., and in the material after the removal of the starch, 5.33 per cent.

[1] Read before the Washington Chemical Society, February 9, 1893.
[2] Wiley, *Agric. Science*, Vol. 2, No. 10, p. 256 *et seq.*

[Reprinted from the Journal of the American Chemical Society.
Vol. XV, No. 6. June, 1893.]

ADDRESS OF WELCOME TO THE WORLD'S CHEMICAL CONGRESS.

By Harvey W. Wiley, Chairman of the Joint Committee of Arrangements and President of the American Chemical Society.

Delivered Monday, August 21, 1893.

GENTLEMEN: You have assembled here in response to the invitation of the World's Congress Auxiliary, tendered chiefly through the American Chemical Society, with the co-operation of the American Association for the Advancement of Science. On behalf of these organizations it becomes my pleasant duty to extend to you a cordial welcome.

The occasion of our meeting is no ordinary one. From the whole civilized world there have been collected in this city the fruits of man's inventive genius and of his industry. Accompanying these are the representatives of all nations, illustrating in their attire and villages the habits and customs of all countries. These varied collections and representatives reflect the life of all the continents and seas. With wondering eyes we have walked through Jackson Park, allured now by the masquerades of the Midway, and again by the palaces of the peristyle. Our eyes have been charmed by the aptly mingled colors of the painters, and bewildered by the brilliancy of the electric display. In hopeless wonder we have gazed at the broad acres of man's manufactures, engirdled by a gallery illustrating his appliances for education. The whole wealth of Ceres is lavishly portrayed in the palace of agriculture. By night the shore of the lake and the borders of the South Pond are transformed into fairy scenes, more beautiful than the poet has ever pictured. The whole world of art, the whole world of work, and the whole world of skill are brought to us in a reality which, were it not so tangible, would seem the deception of a wizard.

For a week now we are called to leave this wonderful scene, the like of which has never before been revealed to the vision of men, for the purpose of studying for a time some of the aspects of one of those sciences which, still modest in its demeanor, has perhaps done more than any other to make the Jackson Park of to-day a possibility.

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THE CAUSES OF TYPHOID FEVER IN THE DISTRICT OF COLUMBIA.

A symposium, in which the following persons took part: Dr. G. L. Magruder; Major Spencer Cosby, U. S. Army and Mr. F. F. Longley, of the Office of the Washington Aqueduct, and Messrs. H. W. Wiley, B. M. Bolton and C. B. Lane, of the Department of Agriculture; and Dr. M. J. Rosenau, Dr. L. L. Lumsden and Mr. J. H. Kastle, Bureau of Public Health and Marine Hospital Service, followed by a discussion.

Introductory Remarks.

By G. LLOYD MAGRUDER, A. M., M. D.

Washington, D. C.

At a meeting in this very hall, on February 5, 1894, of the Sanitary League, a society formed for the welfare of the District, the late Dr. Charles Smart, U. S. Army, read a paper upon Typhoid Fever in the District of Columbia. His statements showed such a serious condition that I called the attention of this Society to the facts at a meeting held two evenings later. The late Drs. W. W. Johnston, C. M. Hammett and myself were appointed a committee to investigate this question. This committee labored earnestly, and submitted its report June 6, 1894, having given five months' continuous attention to the work.

It considered in this report—

"1. The prevalence and mortality of typhoid fever in the District.

"2. The relations of the dissemination of the disease to the—

(*a*) Public water supply.

(*b*) To the pollution of the soil with the leakage from privies, defective sewers and from the backing up of sewage from tidal movements.

(*c*) To the drinking of well or pump water.

(*d*) To contaminated milk and to other causes.

"3. The difference in mortality in different areas of the city, with a view to discover the causes of the disease.

"4. Conclusions based upon the foregoing data as to what measures should be taken to diminish the spread of the disease.

"It was disclosed that conditions were even worse than Dr. Smart had represented them to be. The facts ascertained were

Compliments of the author

The Synthetic Food of the Future.

BY HARVEY W. WILEY.

[Reprinted from the Journal of the American Chemical Society,
Vol. XVII., No. 7. July, 1895.]

ON THE DETERMINATION OF SMALL QUANTITIES OF PHOSPHORIC ACID BY THE CITRATE METHOD.[1]

By E. G. Runyan and H. W. Wiley.

Received April 15, 1895.

THE results obtained by analysts in different parts of the world in precipitating phosphoric acid directly by magnesia mixture, in presence of citric acid or its salts, show that this process may safely take the place of the molybdenum method with all standard tricalcium phosphates or their preparations. We have observed in our work the most satisfactory agreement between this method and the molybdenum method of the Association of Official Agricultural Chemists. This statement, however, holds true only when the phosphoric acid is present in considerable quantities, at least in excess of five per cent. With smaller quantities of phosphoric acid we have observed that the citrate method leads to results which are decidedly inferior to those obtained by the molybdenum process.

The principle of the citrate method may be stated as follows: In the presence of a considerable excess of ammonium citrate a solution of a magnesium salt, made alkaline by ammonia, will precipitate the phosphoric acid as ammonium magnesium phosphate. The iron and alumina which may be present in the solution will not be precipitated under the above circumstances either as hydroxides or as phosphates. The ammonium magnesium phosphate can be subsequently separated by filtration, converted into magnesium pyrophosphate and weighed. An examination of the

[1] Read before the Washington Section, April 11, 1895.

[Reprinted from the Journal of the American, Chemical Society, Vol. XVIII., No. 12. December, 1896.]

[Contribution from the Chemical Laboratory of the U. S. Department of Agriculture, No. 22.]

A MODIFIED FORM OF THE EBULLIOSCOPE.

By H. W. Wiley.

Received September 26, 1896.

THE determination of the alcohol in wines and beers, from the temperature of the vapors given off on boiling at atmospheric pressures, has long been practiced. The instrument by means of which this determination is made is known as the ebullioscope or ebulliometer. The use of this instrument

U. S. DEPARTMENT OF AGRICULTURE.
DIVISION OF CHEMISTRY.

POTASH AND ITS FUNCTION IN AGRICULTURE.

BY

H. W. WILEY,
Chief of the Division of Chemistry, U. S. Department of Agriculture.

[REPRINTED FROM THE YEARBOOK OF THE DEPARTMENT OF AGRICULTURE FOR 1896.]

[REPRINTED FROM THE JOURNAL OF THE AMERICAN, CHEMICAL SOCIETY, VOL. XVIII., No. 4. APRIL 1896.]

[CONTRIBUTIONS FROM THE CHEMICAL LABORATORY OF THE U. S. DEPARTMENT OF AGRICULTURE, No. 17.]

DETERMINATION OF THE HEAT OF BROMINATION IN OILS.[1]

BY H. W. WILEY.

Received January 3, 1896.

THE qualitative value of the degree of heat produced in mixing oils with sulphuric acid, is pointed out in Bulletin No. 13, Part IV, pages 475 *et seq*. In that bulletin a great number of examples are given, showing the different behavior of different fats and oils when treated according to the method first proposed by Maumené with sulphuric acid under standard conditions. It is evident that in a process of this kind the actual rise of temperature observed is dependent upon many varying conditions, such as the initial temperature, strength of sulphuric acid, relative proportions of sulphuric acid and oil employed, perfectness of insulation and other data depending on the analytical system itself. The data obtained under standard conditions, however, are extremely valuable in discriminating between fats of different characters. For instance, the rise of temperature produced by a given weight of butter fat is only about one-fourth of that produced by an equal weight of cotton oil under the same conditions. In the bulletin mentioned above, formulas are also given whereby some quantitative idea may be obtained of the relative proportions of the two constituents in a mixed oil. The fact that the natural glycerides contain unsaturated radicals capable of combining with the halogens has long been recognized, and Hübl, as is well known, has based a quantitative method of great value upon the ability of glycerides to absorb iodine. Chlorine and bromine are also absorbed with equal or greater avidity, and attempts have been made to establish quantitative methods in which these halogens take the place of iodine in the Hübl process.

Hehner and Mitchell[2] propose an innovation upon the general principles of the Hübl method in which the degree of chemical action is not measured by the residue of the halogen left unabsorbed, but by the degree of heat produced by the chemical reaction which takes place. They have not made any attempt

[1] Read at the Cleveland Meeting, December 31, 1895.
[2] Analyst, 20, 146.

[Reprinted from the Journal of the American Chemical Society
Vol. XVIII., No. 10. October, 1896.]

SECOND INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY.

By H. W. Wiley.

Received September 15, 1896.

At the first congress held in Brussels, in 1894, it was decided to hold the meetings bi-annually and Paris was selected as the most desirable place for the reunion this year. As has already been announced to the readers of the Journal, the present congress is organized under the patronage of the French government and under the immediate direction of l'Association des Chimistes de Sucrerie et de Distillerie de France et des Colonies. The late Professor Pasteur had accepted the honorary presidency of the congress, and all delegates from foreign countries have felt an especial regret that his death has prevented them from listening to his words of welcome and from forming his personal acquaintance.

To promote the interests of the congress, committees were organized in most countries. The personnel of the one in the United States has already been published in this Journal. Through the French Foreign Office all the principal governments were invited to send delegates to the congress. Official representatives were present from Belgium, Germany, Italy, Russia, Switzerland, Austria, Portugal, Denmark, and the United States. So far as I can learn, and the fact is worthy of remark, there is no representative in attendance from England, either official or otherwise. The official delegate from the United States is Mr. C. A. Doremus, of New York, while the writer has a commission as a delegate from the Department of Agriculture, and one from the American Chemical Society, sent through the courtesy of the president and council. Belgium has the largest representation of any foreign country, and, since these gentlemen are all French in their language, the congress, as is natural, is essentially French.

The congress was formally opened July 27, at 10 A. M., in the grand amphitheater of the Sorbonne. Perhaps there is no other spot in the whole world so well suited by its history and tradi-

[Reprinted from the Journal of the American Chemical Society, Vol. XVIII., No. 2. February 1896.]

[Contributions from the Chemical Laboratory of the U. S. Department of Agriculture. No. 16.]

NOTE ON THE USE OF ACETYLENE GAS AS AN ILLUMINANT FOR POLARISCOPIC WORK.[1]

By H. W. Wiley.

Received November 23, 1895.

THROUGH the courtesy of Prof. Charles E. Munroe, I was able to secure twenty-five kilos of calcium carbide for

[1] Presented to the Washington Section, Dec. 9, 1895.

[Reprinted from the Journal of the American Chemical Society, Vol. XVIII, No. 5. May 1896.]

[Contributions from the Chemical Laboratory of the U. S. Department of Agriculture, No. 19.]

DETERMINATION OF LACTOSE IN MILKS BY DOUBLE DILUTION AND POLARIZATION.

By H. W. Wiley and E. E. Ewell.

Received March 20, 1896.

In volume 6, page 289, of the *American Chemical Journal*, one of us (Wiley) published an article on the determination of lactose in milks by optical methods. The principal novelty in this process was the substitution of mercuric nitrate as the reagent for precipitating proteids in place of the other reagents which had usually been employed for that purpose. By the use fo mercuric nitrate in an acid solution, it was shown in that

[Reprinted from the Journal of the American Chemical Society.
Vol., XIX. No. 4. April, 1897.

[Contributions from the Chemical Division, U. S. Department of Agriculture, No. 25.]

DETERMINATION OF POTASH AND PHOSPHORIC ACID IN FODDERS.

Contributed by H. W. Wiley.

Received January 26, 1897.

In the comparative analyses of soils during the past three years we have grown a great number of pot cultures and determined the mineral plant foods in the resulting crops. The following modified potash method, devised by Mr. K. P. McElroy, while not sacrificing accuracy, has made it possible for one analyst to determine the potash, often in duplicate, in more than ten samples a day. Since the quantity of the crop harvested from a poor soil is often small, it is desirable that the phosphoric acid and potash be determined in the same sample.

The method in use for the determination of potash in feeding stuffs, in the laboratory of the United States Department of Agriculture is a simple modification of the ordinary Lindo-Gladding method, as prescribed by the Association of Official Agricultural Chemists. It is as follows:

Burn eight grams of the substance over a low flame to approximate whiteness. Burning after addition of sulphuric acid does not give more potash than burning alone, and it is more troublesome. Transfer the ash to a 200 cc. flask, using about fifty cc. of water, add five cc. of strong hydrochloric acid and place on the steam-bath for an hour, or boil from five to ten minutes. Add a little iron chloride to precipitate all phosphoric acid as fer-

Sonderabdruck.

Die landwirtschaftlichen
Versuchs-Stationen.

Organ für

naturwissenschaftliche Forschungen

auf dem Gebiete der Landwirtschaft.

Unter Mitwirkung

sämtlicher Deutschen Versuchs-Stationen

herausgegeben von

Dr. Friedrich Nobbe,
Geheimer Hofrat, Professor an der Kgl. Akademie und Vorstand der physiologischen Versuchs- und Samenkontroll-Station zu Tharand.

„Concordia parvae res crescunt . . ."

Band XLIX.

BERLIN.
VERLAGSBUCHHANDLUNG PAUL PAREY.
Verlag für Landwirtschaft, Gartenbau und Forstwesen.
SW., Hedemannstrasse 10.
1897.

Sechs Hefte mit in Sa. 30 Bog. bilden einen Bd. Abonnementspreis d. Bandes 12 M.

[Reprinted from the Journal of the American Chemical Society.
Vol., XIX. No. 3. March, 1897.

[Contributions from the Chemical Division, U. S. Department of Agriculture. No. 24.]

RECOVERY OF WASTE PLATINUM CHLORIDE.

Contributed by H. W. Wiley.

Received January 26, 1897.

ALUMINUM turnings, freed of oil, have been used in this laboratory for some time for many purposes. Immediately after the publication of the paper of Wislicenus and Kaufmann[1] on the various applications of aluminum amalgam in the laboratory, a large quantity of these turnings was procured from the Pittsburg Reduction Co. Considerable difficulty was encountered in attempting to use these turnings in the manner described in the paper cited above. Mr. McElroy prepared the amalgam by washing aluminum clippings with ether to remove oil, treating with dilute caustic soda till free evolution of gas took place,

[1] *Ber. d. chem. Ges.*, 28, 1323.

SOIL FERMENTS IMPORTANT IN AGRICULTURE.

BY

HARVEY W. WILEY,

Chief of the Division of Chemistry, Department of Agriculture, Washington, D. C.

(Reprinted from the JOURNAL OF THE FRANKLIN INSTITUTE, April, 1897.)

PHILADELPHIA

1897

On the Experimental Determination of the Hydrothermal Value of a Bomb Calorimeter.

By H. W. WILEY and W. D. BIGELOW.

On the Influence of Vegetable Mold on the Nitrogenous Content of Oats.

By H. W. WILEY.

Calories of Combustion in Oxygen of Cereals and Cereal Products, Calculated from Analytical Data.

By H. W. Wiley and W. D. Bigelow.

The Solubility of the Pentosans in the Reagents Employed in the Estimation of Starch.

By W. H. KRUG and H. W. WILEY.

Comparison of the Standard Methods for the Estimation of Starch.

By H. W. WILEY and W. H. KRUG.

[Reprinted from the Journal of the American, Chemical Society, Vol. XVIII., No. 6. June 1896.]

[Contributions from the Chemical Laboratory of the U. S. Department of Agriculture, No. 20.]

THE EFFECT OF ACIDITY ON THE DEVELOPMENT OF THE NITRIFYING ORGANISMS.[1]

By E. H. Hwell and H. W. Wiley.

Received April 16, 1896.

FOR nearly two decades, both lay and scientific minds have been constantly perturbed by frequent announcements of the discovery of some new microbe that is seeking the destruction of ourselves or of our domestic animals. We have been warned to be on the alert for these deadly foes in the food that we eat, in the water that we drink, and in the air that we breathe. This general alarm has caused us to overlook many of the other important discoveries in the world of microscopic organisms. Indeed, the rapid development of our knowledge of the disease-producing organisms has been accompanied by an equally important advance in our knowledge of that multitude of microbes that are not only our friends, but are necessary to our existence. It is to one group of these more friendly organisms that we wish to ask attention. Passing over a host of species that are of importance in various agricultural industries, including those organisms that enable the farmer to draw upon the uncombined nitrogen of the atmosphere for an increase of his available nitrogenous plant food, we desire to consider the group of organisms engaged in the final stages of the process of transforming the nitrogen of dead animal and

[1] Read before the Washington Section of the American Chemical Society, April 9 1896.

Third International Congress of Applied Chemistry.

By H. W. Wiley.

NITRIFICATION AND ITS RELATION TO AGRICULTURE

LEGUMINOUS CROPS AND NITRATE OF SODA

The Influence of Temperature on the Specific Rotation of Sucrose and Method of Correcting Readings of Compensating Polariscopes Therefor.

By Harvey W. Wiley.

The Relation of Chemistry to the Progress of Agriculture.

BY

DR. H. W. WILEY,
Chemist.

REPRINT FROM YEARBOOK OF DEPARTMENT OF AGRICULTURE FOR 1899.

The Fourth International Congress of Applied Chemistry.

By H. W. Wiley.

[Reprinted from the Anniversary Number of the American Chemical Society, 1901.]

The Dignity of Chemistry.

By H. W. Wiley.

DRUGS AND THEIR ADULTERATIONS AND THE LAWS RELATING THERETO.

By H. W. WILEY, A. M., M. D., LL. D.

REPRINTED FROM
WASHINGTON MEDICAL ANNALS,
Vol. II, No. 3, 1903.

Disappearance of Reducing Sugar in Sugar-Cane.

By H. W. Wiley.

Inconsistencies in State Food Laws

By H. W. Wiley, M.D., of the Department of Agriculture

By reason of the character of our national growth the Congress of the United States has no control over the police powers of the various states. The police powers of the Congress are confined by wise constitutional provisions to products entering our country from abroad, or to such as become subjects of interstate commerce. One important function of the police powers, both of the National Government and of the States, relates to the wholesomeness and purity of foods. In the term "food" are now included beverages of all kinds, condiments and substances added to foods for any purpose whatever. It is a wise exercise of the police power to forbid traffic in filthy or decomposed foods, or in those which contain any added substance injurious to health, which are falsely labeled or branded or which are adulterated in any way, whether in a manner prejudicial to health or not.

Guided by this general principle, the states and territories of the Union have almost without exception enacted legislation of a restrictive character on commerce in foods and drinks. This legislation, as may well have been expected, is of a most varied kind. Its inception has usually been due to the efforts of some particular industry to protect itself against competition with an adulterated and correspondingly paper article. The real reason for the enactment of laws has, therefore, been from the first a com- protection of health has been lent to the [illegible] and not the con- interest; most of the legis- laws regulating

extant. This inte- tute books.

is some uniform principle on which the state laws may rest.

Federal legislation has not been less disposed to fall into the same unfortunate condition. We have, for instance, a federal law forbidding the coloring of oleomargarine and legalizing the coloring of butter, a law which forbids the addition of sugar or color to whisky and permits and counter- ces their addition to compounded and imitated whiskies. Brandy is allowed by law to be added, free of tax, to sweet wines, but not to those that are dry. These are only a few of the inconsistencies, yea, even oppressions, of the federal laws relating to foods. One other instance may serve to show the tendency to partial or favored legislation.

The only general law in the federal statute books restricting interstate commerce in food products contains an almost inexplicable discrimination. This law forbids interstate commerce in food and dairy products which are misbranded as to the state or territory where made. This is a most wholesome prohibition.

sky is taking place. The ideal food law for the states is one based on a national law regulating interstate commerce in foods, a law in which no food product is mentioned by name, in which definitions of food adulteration in general terms are clearly stated, and one which requires uniform practices in the preparation of all food products. Such a law is based on the eternal principles of ethics, transgresses no law of justice and imposes no unequal penalties.

When in the future the day shall come which marks the enactment of such legislation for the nation and for the state, the evils of food adulteration will be checked, the manufacturer of foods will be subjected to no needless restrictions, and the consumer will be amply protected.

Captains With Noble Soldieries: Describing Employer and Employes

This question of the true relationship of employer and employe, said Mr. F. C. Nunemacher, in a recent address before the Steam Engineers' Club, of Louisville, is one of the most vital questions of the day, and one which should have the careful study and consideration of our best thinking men. Upon the proper solution of this question depends much of the happiness and prosperity of our country, and because of the unwise and too radical actions of both employer and employe in these days do we have the great disturbance of our industrial peace.

To my mind the proper relation of [illegible] for them- his employes is that of a captain to a work for them, and as he a captain, noble should be[illegible]ong us as Noble [illegible] and noble soldiery.

I wish there were more emp[illegible] this idea. [illegible]

THE ETHICS OF PHARMACY.

H. W. WILEY, M.D.,
Washington, D. C.

Reprinted from The Journal of the American Medical Association, July 15, 1905.

CHICAGO:
PRESS OF THE AMERICAN MEDICAL ASSOCIATION
ONE HUNDRED AND THREE DEARBORN AVENUE.
1905.

[Reprinted from *American Medicine*, Vol. IX, No. 18, pages 724-725, May 6, 1905.]

ADULTERATION OF DRUGS.[1]

BY

H. W. WILEY, M.D.,

of Washington, D. C.

Chief of the Department of Agriculture, Bureau of Chemistry.

One of the most promising signs of the times, not only in medical circles, but in public opinion, is the growing feeling that all kinds of adulteration and deception should be abolished. It may be true, as Barnum once said, that "the American people love to be humbugged." But humbugging is a deception which we calmly invite. We are perfectly willing to go to the theater and pay to see an exhibition of sleight of hand, knowing all the time that everything we see is merely a trick which the performer is able to turn. This, however, would be quite a different thing from anyone seriously attempting to deceive the public into the belief that he possessed supernatural powers. If we buy from a faker on the street a magic razor strop or grease eradicator, we have no right to be disappointed when we find how wofully we have been deceived, but when we go into a reputable business house, to have some spurious article pawned off upon us for genuine, we have just cause for complaint.

He who follows the misleading and deceptive advertisements which appear even in reputable journals and magazines, has no cause to feel aggrieved in purchasing a proprietary remedy which cures every ill to which flesh is heir and prolongs life to such a degree that the Millenium seems more than a mere possibility, but when he goes into a reputable drug store with a physician's prescription and carries away an article entirely different in its nature from that prescribed, he then has a just cause to feel outraged.

The adulteration of drugs rests practically upon the same foundation as the adulteration of foods, namely, the desire to secure money under false pretenses. The primary object of adulterating drugs is not to work an

[1] Presented to the American Therapeutic Association at the annual meeting held in Philadelphia, May 5, 1905.

Report of the Committee on Tax-free Alcohol.

By J. H. Long, H. W. Wiley and Ira Remsen.

December 2 upon at 8 a. m., April 6th, by Dr. H. N. Mayo, Salt Lake City, who found a perforated round gastric ulcer of about the size of a ten cent piece within three quarters of an inch of the pylorus, but no dilatation of the stomach. After suturing the opening he did a posterior gastroenterostomy, uniting the most pendulous portion of the stomach posteriorly to the jejunum, about five inches below the ligament of Treitz, and then did an enteroenterostomy about four inches below the gastroenterostomy. The patient rallied well after the operation, with no vomiting from the ether, and progressed favorably until 9 p. m., when he had a severe hemorrhage. He was infused and was given adrenalin by the mouth. From this time on his recovery was uninterrupted until April 26th, when he had an attack of abdominal pain with vomiting, which was relieved by washing out the stomach. He left the hospital on April 30th, weighing 133 pounds, and was advised to follow the diet prescribed in Thompson's *Dietetics* for such cases. He took sodium phosphate for two weeks, but no continuous treatment with alkalies was carried out.

The patient improved steadily, and was in splendid physical condition until the middle of October, 1905, when there was a return of the abdominal pain and vomiting. Following this he noticed for the first time that he had a black stool, but did not speak of it to his physician. From November 1st he began to have the old gnawing symptoms, with some abdominal distress. On the third and fourth he had more black stools. On the twelfth, when I saw the patient for the first time, he had had during the morning some sharp, colicky stomach pains, vomiting twice, and that night was seized with a very severe, steady, boring pain in the region of the umbilicus, which was only relieved by morphine hypodermically and poultices. On November 16th he was given an Ewald test breakfast. The analysis showed total acidity 90, free hydrochloric 70, combined hydrochloric 14, total hydrochloric 84, organic acids and salts 6, no trace of blood. Two days

THE SCOPE OF THE FEDERAL FOOD AND DRUGS ACT.*

By H. W. WILEY, M. D.,
Washington,
Chief of the Bureau of Chemistry, Department of Agriculture.

The food and drugs act introduces for the first time into this country a national control over interstate and foreign commerce in foods and drugs. The importation of foreign drugs is controlled at the ports of entry under an existing law which was first enacted in 1848. This law not having been specifically repealed, I believe, under the ordinary construction, remains in full force except in points in which its provisions are in conflict with those of the new inspection law. Just how far the requirements of the new inspection law must be read into the old law is a matter of purely legal character on which I have no opinion. It is evident, therefore, that the application of the act, in so far as drugs are concerned, will be practically to the control of domestic commerce.

Two standards for drugs entering into interstate commerce are specifically noted in the act, namely, standards as set forth or indicated in the *United States Pharmacopœia* and the *National Formulary;* second, standards which are placed on the drugs themselves. Under the terms of the act it appears that any drug bearing a name recognized in the *United States Pharmacopœia* or *National Formulary* shall be held to conform in strength and purity to the standards therein established or indicated, whether they are marked U. S. P., N. F., or not. If it is desired that these drugs shall conform to any other standard than

PRODUCTION OF SYNTHETIC ALCOHOL

BY H. W. WILEY AND HERMAN SCHREIBER

Reprinted from
PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY
VOL. XLVI. 1907

"A Good Name is Rather to be Chosen Than Great Riches."

ADDRESS

By

DR. H. W. WILEY,

Chief Chemist, Department of Agriculture, Washington, D. C., Delivered at Eleventh Annual Session of the Inter-State Cotton Seed Crushers' Association, at Jamestown, Virginia, May 21st, 22nd and 23rd, 1907.

PURE DRUGS

By H. W. WILEY, M.D.

Chief of the Bureau of Chemistry, U. S. Department of Agriculture.

[Reprinted from
MONTHLY CYCLOPÆDIA OF PRACTICAL MEDICINE,
Vol. X, page 251, 1907

PRODUCTION OF SYNTHETIC ALCOHOL

By H. W. WILEY and HERMAN SCHREIBER

Reprinted from
Proceedings of the American Philosophical Society
Vol. XLVI. 1907

THE PHARMACOPEIA AS A LEGAL STANDARD.

H. W. WILEY, M.D.
Chief, Bureau of Chemistry, U. S. Department of Agriculture.
AND
L. F. KEBLER, M.D.
Chief, Drug Division, Department of Agriculture; member of the Council on Pharmacy and Chemistry of the American Medical Association.
WASHINGTON, D. C.

Reprinted from The Journal of the American Medical Association, December 12, 1908, Vol. LI, pp. 2020-2022.

[Reprint from INTERSTATE MEDICAL JOURNAL, Vol. XVI., No. 6, 1909.]

DIET AS A PROPHYLACTIC AND THERAPEUTIC.

By H. W. WILEY, M. D., of Washington, D. C.

There is an increasing belief in the medical profession, and this belief is founded on substantial evidence, that diet is an important factor in the production and cure of disease. Both the words "production" and "cure" are used here in their ordinary sense, meaning as aids to, or favorable to, and not as possessing specific properties of production or effacement. By reason of the provisions of the Food and Drugs Act the term "cure" is now somewhat restricted in its applications. The common practice of advertisers of patent or proprietary medicines in the past was to advertise them as a "cure" or "sure cure" or "infallible cure" for various diseases, and also to place similar statements on the labels. Since the law was enacted forbidding the use of a statement which was false or misleading in any particular, and especially since the courts have judged that the word "cure," in the strict sense of that term, may not be applied to a remedy or medicine, less use is made of the word. For this reason I have used the term above in the restricted sense of establishing favorable conditions whereby the natural removal of the disease might take place, rather than as exerting a specific influence in the removal of the disease and the restoration of the diseased organ to a state of health. I propose to eliminate from the present discussion the well-known effects of adulterated or debased foods [illegible] disease, and shall confine myself [illegible] to the influence of nutritious, palatable, wholesome [illegible] clean foods, both as a preventive and as a remedy.

If we accept the modern theory of specific infection in the etiology of disease, we should also accept its attendant theories, which may be briefly stated as follows: A perfectly healthy, well nourished organ becomes infected with any disease germ with great difficulty; in other words it is self protective. I shall not enter here into any details concerning this theory, but only state it briefly. Granting this, therefore, it is self evident that the food or diet must play a most important part in the prevention of disease. The normal condition of the body, or any organ of the body, and hence its maximum power to protect itself against infection, is directly dependent upon the character and the amount of the diet. It follows then as a necessary conclusion that the debasement of the diet, the addition of injurious substances thereto, or the abstraction of valuable ingredients therefrom,

*Read at the Annual Meeting of the American Therapeutic Society, New Haven, Conn., May 6-8, 1909.

Address of Dr. H. W. Wiley

Reprinted from
The Journal of the American Leather Chemists Association
January, 1910

[Reprinted from
MONTHLY CYCLOPEDIA AND MEDICAL BULLETIN
July-November, 1911.]

BROMATOTHERAPY.*

BY H. W. WILEY, M.D.,
WASHINGTON, D. C.

IT has long been recognized in investigations in the field of preventive medicine that food is one of the most valuable agents for combating infection and warding off sickness. The well-nourished man is, to a certain extent, immune from ordinary infections and diseases. It is not my purpose today to enter into a discussion of the theories relating to immunity in a well-nourished organism, save to call attention to the fact that in such an organism all the functions of the body are so harmoniously arranged as to present an undivided front to any common enemy. The presence throughout the body of organisms capable of attacking and destroying undesirable germs is well known. It is generally regarded that precautions taken by the public in the control of their food supply are health measures. In fact, this is regarded as a fundamental basis for the making of pure-food laws by the States and by the nation.

In some quarters an erroneous idea prevails concerning this important fact, viz., that there is no necessity for regulating traffic in foods unless it can be shown in individual cases that specific foods produce well-marked injurious effects. This view is entirely too narrow to cover the scope of such legislation. It is advisable to keep well to the fore, as a guiding principle, the idea that the health of a community depends largely on the character and quantity of the nutrients which it consumes.

FASTING INCREASES SUSCEPTIBILITY.

The experiments which have been made in regard to the susceptibility to various diseases during fasting and starvation afford another illustration of the truth of the proposition. The fasting or starving animal is much more subject to the action of deleterious or poisonous substances than the animal which is in a proper state of nutrition. This fact will receive further attention. Even in specific cases it is well understood that the administration of a deleterious drug has its effect somewhat softened by being combined with an abundance of nutritious foods. The general principle that pure, nutritious foods are prophylactic and tend to preserve the health of the community is uncontested. The question may be asked how this can be reconciled with

* Presidential Address at the Twelfth Annual Meeting of the American Therapeutic Society, held in Boston, Mass., May 11, 12, and 13, 1911.

THE HOSPITAL BULLETIN

Published Monthly in the Interest of the Medical Department of the University of Maryland

PRICE $1.00 PER YEAR

Contributions invited from the Alumni of the University, Business Address, 608 Professional Building, Baltimore, Md.

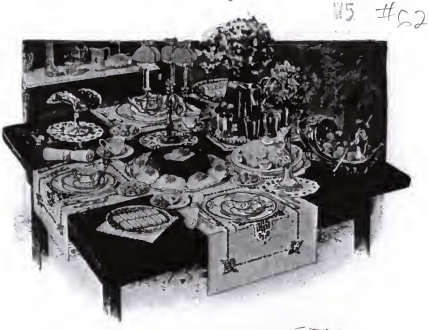
Entered at the Baltimore Post-office as Second Class Matter

Vol. VII BALTIMORE, MD., JUNE 15, 1911. No. 4

ADDRESS OF DR. HARVEY W. WILEY, DELIVERED AT THE LYRIC THEATER JUNE 1, 1911, at 4.15 P. M., ON THE OCCASION OF THE GRADUATING EXERCISES OF THE UNIVERSITY OF MARYLAND.

Members of the Faculty of the University of Maryland, Students and Graduates of the University:

As a farmer I am struck with this fact today—that there is one crop in this country that never fails, no matter how dry it may be nor how late the frost may come in the spring, nor how apathetic a husbandman may prove himself to be, the crop of bachelors and the crop of doctors never fails us. But it is, I suppose, a mark of the wonderful prosperity of the country that this crop goes on, ever increasing in volume. As I saw this great concourse of gowned young men and one or two young women—for I see you have a sprinkling of a competition which you have got to look out for in the future—I wondered where you are going to find places; if you are all going to get jobs. And remember, that there are other universities besides that of Maryland in this country. I have been going now for about two weeks almost every day addressing people who are graduating, so to speak, so I have seen a great many of them, and I hope that the pleasure which I get upon looking into the faces of young graduates may never be denied me as long as I live and have a voice. I hope that the institutions of this country will continue to ask me to come to their commencements, because I can assure you that great as your pleasure is in receiving your diploma, it gives me even greater pleasure to look into the faces of these young people who are to be the arbiters of the destinies of this country. So I am glad to see you to-day; I am glad to see such numbers of you, so many who have completed the courses assigned and who are ready, I suppose, to begin the more active duties of life. Some of you are unfitted for that yet, because I see some are only bachelors of arts or bachelors of science. Now, with what profound pity you must look down upon a bachelor of arts, you who bear the dignity of doctor of medicine or of law! The one is only a preparation for the degree which you have already received, but let me tell you bachelors of science and bachelors of arts that there is not so very much difference sometimes, after all, between the amount of learning which a bachelor of science or of arts may have and that which is borne by a doctor of medicine or a bachelor of law. I have been opposed for a great many years—but I do not want you to draw from this any reflection upon you young bachelors or doctors of medicine—but I have long been of the opinion that it is not proper to give the degree of "Doctor of Medicine" to a graduate in medicine, because the word "doctor" does not mean a physician any longer. It never did; although in this country when we speak of a man as a doctor we associate the idea with the practice of medicine in some way in one form or another. The word "doctor" does not have anything to do with medicine necessarily. The term "doctor" means one who is learned, one who has approved himself as a man of learning. I think the English custom is a great deal better. It is a long while after graduation in medicine before the English physician can assume the title of "doctor." But that has nothing to do with the case today. You are doctors, or soon are to be, and I do not suppose you ought to be deprived of that pleasure, but it is a long while before you can get to be doctors of laws, and some of you never will. I was almost



PURE FOOD LUNCHEON

NEW ENGLAND SANITARIUM

SATURDAY, NOVEMBER 25, 1911

6.30 P. M.

FOR DR. AND MRS. HARVEY W. WILEY AND GUESTS

No flocks that roam the valley free
To slaughter I condemn;
Taught by the power that pities me,
I learn to pity them.

—*Goldsmith.*

APPLICATIONS OF CHEMISTRY TO PUBLIC WELFARE.

BY
HARVEY W. WILEY

REPRINTED FROM THE JOURNAL OF THE FRANKLIN INSTITUTE, JANUARY, 1911

PRESS OF
J. B. LIPPINCOTT COMPANY
1911

A Chemist Who Has Served Mankind

The Celebration of the Eightieth Birthday of the Father of "Pure Food" Recalls a Long Career of Service

Copyright, Underwood & Underwood

Dr. Harvey W. Wiley

BACK in 1871, when Dr. Charles E. Monroe was an instructor at Harvard, there appeared in Cambridge a tall young man with a black beard. Although there were misgivings on the part of the faculty, who apparently believed that a pirate had wandered from the Spanish Main, nevertheless the tall young man enrolled as Harvey Washington Wiley. Graduated in 1873 with a bachelor's degree, though he already held a medical degree, Dr. Wiley soon became professor of chemistry at Purdue University and remained there till he was called to Washington as chief chemist of the Department of Agriculture in 1883. Here Dr. Wiley made a world-wide reputation in his fight for pure food which finally resulted in the Pure Food and Drug Act of 1906. Naturally he made many enemies too—so bitter that their main idea in life became a personal vengeance on Dr. Wiley.

But his fight for pure food has been won not only by legislation and government inspection of food products but by the development of a consciousness on the part of the people of the country for clean food.

In Washington last week in connection with a meeting of agricultural chemists a banquet was tendered to Dr. Wiley in honor of his eightieth birthday. Many distinguished scientists were present. W. W. Skinner, of the Bureau of Chemistry, acted as toastmaster and introduced B. B. Ross, who told of Dr. Wiley's part in founding the American Association of Agricultural Chemists. C. A. Browne, director of the Bureau of Chemistry, reviewed Dr. Wiley's work as head of that institution. Finally Dr. Wiley was asked to shake hands with some old friends, and four disreputable characters were ushered into the room: Ben Zoate, Sally Cylate, C. Tar Dye and Sac Charin. Dr. Wiley as usual rose to the occasion, remarking that long and intimate association had only intensified his hate for each of them. He bade them good-by forever with the exhortation to lead a life in fields where each could be useful and not harmful.

Dr. Wiley has been a genial and leading figure in the field of chemistry for nearly half a century. Had he been merely a pioneer, and most of his generation of chemists were pioneers, he would have deserved the respect of his colleagues, but Wiley is more than a pioneer, he is a crusader. In the biggest sense of the word his was a crusade and his leadership, aggressive, courageous and strong, has made the crusade successful. Nearly every one of the 110,000,000 people in this country benefits daily from Wiley's work for clean food. The timeliness of the work also deserves comment. Imagine a national distribution of foodstuffs that present-day methods of transportation and advertising have made possible without the safeguarding that Wiley created.

Chem. & Met. adds its felicitations to the great volume of acclaim that has poured in on Dr. Wiley on his eightieth birthday. Still strong, vigorous, genial, he has yet many years in which to serve this country, to educate its people in correct and healthful diet.

THE *Journal* of the American Medical Association states that in the report of the recent meeting of the building committee of the "University City," the secretary, Don Florestan Aguilar, announced that the bull fight held lately in Madrid for the benefit of the "University City" had cleared 47,500 pesetas. He announced, also, that it had been agreed to include the veterinary school among the buildings of the city. It was agreed that a committee composed of a professor of the veterinary school and an architect should visit the veterinary schools of Leipzig and Munich to collect fundamental principles to be used in the school of Madrid. Those German veterinary schools are considered by the committee to be the best in the world. Señor Aguilar presented the plans for a dormitory in the "University City" for the Spanish-American students. The funds for the building are the gift of Dr. del Amo. The project is entrusted to Señor Nebot, rector of the School of Architecture of Barcelona. It was agreed that the work should begin immediately. Dr. Del Amo D. Gerardo is a physician, formerly of Madrid, who emigrated to Los Angeles. It is estimated that the cost of the work will be 130 million pesetas. The mayor of Madrid ordered that the municipal hospital, which is to be built with three million pesetas left by the Count of Guaqui for this purpose, should be constructed on the land of the University City" and in connection with the hospital of the medical faculty.

PROTECTING the sea front along the Scripps Institution of Oceanography, University of California, assembly bill 368 has been passed by both houses of the legislature and signed by Governor Young. This bill creates a biological reserve along the shore line of the institution, and prevents all fishing and collection of marine life to a mean low tide depth of six feet, which includes outlying rocky ledges. This action was taken because of the threatened extinction of many kinds of marine animals in these waters.

UNIVERSITY AND EDUCATIONAL NOTES

A GIFT of $2,000,000 has been made by Mr. John D. Rockefeller, Jr., toward a building for American students in the "University City" at Paris.

THE first unit in the two and a half million building program at the University of Tennessee is now in process of erection. The building is for physics and geology, and, with its furnishings, will cost about $1,000. Plans for a building for chemistry are under way, and other buildings projected include a program calling for about $500,000 annually for the next five years.

THE new building for animal biology at the University Farm of the University of California at Davis, built at a cost of $300,000, is nearing completion. It is planned to occupy the building on October 1.

REAR ADMIRAL SAMUEL S. ROBINSON has assumed his new work as the superintendent of the United States Naval Academy at Annapolis, succeeding Rear Admiral Louis Nulton.

PROFESSOR ELMER S. SAVAGE has been named acting head of the department of animal husbandry at Cornell University, succeeding Professor Henry H. Wing, who retired at the close of the academic year.

ACCORDING to the *Journal* of the American Medical Association, Dr. James E. Rush, head of the department and professor of hygiene and public health, University of Kentucky, Lexington, has resigned. Drs. W. Walter Zwick and D. Stanton Ross are also reported to have resigned from the department of hygiene.

DR. ROBERT DONALDSON has been appointed to the Sir William Dunn chair of pathology in the University of London, tenable at Guy's Hospital Medical School.

DAVID REGINALD PIPER MURRAY, of Pembroke College, Cambridge, has been elected to the Benn W. Levy research studentship in biochemistry.

DISCUSSION

THE EARLIEST DYNAMO

I NOTICE that in the issne of SCIENCE of August 13, 1928, Dr. Frederick Bedell, of Cornell University, in alluding to the letter of Dr. H. W. Wiley in your issue of May 25, 1928, says that he quite correctly calls attention to the fact that the fiftieth anniversary of the dynamo should have been held some time ago, and alludes to two French dynamos exhibited at the Centennial Exhibition of 1876. He then goes on to say, "The earliest dynamo made in America, constructed before the importation of any machines from Europe, was operated and exhibited at the same exhibition." He describes the conditions.

Now I am not aware that anybody has ever claimed that the fiftieth anniversary of the dynamo was to be celebrated. At the Franklin Institute meeting of April 18, I took part with others in a celebration, but it had nothing to do with any fiftieth anniversary

The Indicator

Published Jointly by
New York Section : : North Jersey Section
American Chemical Society

VOL. IX., NO. 4 APRIL, 1928.

DR. HARVEY W. WILEY

[PUBLIC—No. 384.]

An Act For preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any person to manufacture within any Territory or the District of Columbia any article of food or drug which is adulterated or misbranded, within the meaning of this Act; and any person who shall violate any of the provisions of this section shall be guilty of a misdemeanor, and for each offense shall, upon conviction thereof, be fined not to exceed five hundred dollars or shall be sentenced to one year's imprisonment, or both such fine and imprisonment, in the discretion of the court, and for each subsequent offense and conviction thereof shall be fined not less than one thousand dollars or sentenced to one year's imprisonment, or both such fine and imprisonment, in the discretion of the court.

SEC. 2. That the introduction into any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia, or from any foreign country, or shipment to any foreign country of any article of food or drugs which is adulterated or misbranded, within the meaning of this Act, is hereby prohibited; and any person who shall ship or deliver for shipment from any State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or to a foreign country, or who shall receive in any State or Territory or the District of Columbia from any other State or Territory or the District of Columbia, or foreign country, and having so received, shall deliver, in original unbroken packages, for pay or otherwise, or offer to deliver to any other person, any such article so adulterated or misbranded within the meaning of this Act, or any person who shall sell or offer for sale in the District of Columbia or the Territories of the United States any such adulterated or misbranded foods or drugs, or export or offer to export the same to any foreign country, shall be guilty of a misdemeanor, and for such offense be fined not exceeding two hundred dollars for the first offense, and upon conviction for each subsequent offense not exceeding three hundred dollars or be imprisoned not exceeding one year, or both, in the discretion of the court: *Provided*, That no article shall be deemed misbranded or adulterated within the provisions of this Act when intended for export to any foreign country and prepared or packed according to the specifications or directions of the foreign purchaser when no substance is used in the preparation or packing thereof in conflict with the laws of the foreign country to which said article is intended to be shipped; but if said article shall be in fact sold or offered for sale for domestic use or consumption, then this proviso shall not exempt said article from the operation of any of the other provisions of this Act.

SEC. 3. That the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor shall make uniform rules and regulations for carrying out the provisions of this Act,

THE FOOD LAW AND THE EXPERTS.

By H. W. WILEY, M.D., Chief U. S. Bureau of Chemistry.

SINCE the last meeting of your Association at Portland, Oregon, a good many changes have been made in the laws of the various States relating to foods and drugs, and some new laws have been enacted in the various States, with the result that at the present time there is scarcely a State in the Union that does not have already enacted or before its legislature a law relating to the inspection of foods and drugs. In addition to the improvements in the State laws two very important laws of a national character have been enacted. The extension of the Meat Inspection Bill is one of great importance to the pure food cause and to the protection of the consumer. The enactment also of the bill relating to interstate and foreign commerce in foods, which has been pending so long in the national legislature, has at last been happily accomplished. The success of this measure has been largely due to the unanimous support accorded to the measure by the food authorities of the various States. They have, in season and out of season, put their shoulders to the wheel of progress, and by their efforts, individually and collectively, and the influence which they have exerted upon their friends and Representatives in Congress, done heroic work in favor of this great measure.

The people of this country, it seems to me, are to be congratulated upon the splendid work which has been accomplished by the national legislature. While no one claims that the law which has been enacted is a perfect one, yet every one will admit that it is based on sound principles of ethics and justice. If experience shall show that it is weak in any of its provisions, the attitude of the national Congress is such to this great question that any needed amendments can be easily secured. This meet-

[Reprinted from AMERICAN CHEMICAL JOURNAL, Vol. XII, No. 3.]

Contributions from the Chemical Laboratory of the Department of Agriculture.

XV.—ORGANIC ACIDS IN THE JUICES OF THE SORGHUM CANE.

BY H. W. WILEY AND W. MAXWELL.

Preliminary investigations with the juices of the sorghum cane have indicated the presence of the following acids, which have been obtained as free crystallised bodies, or as salts:

A. Volatile	1.	Formic acid.	
	2.	Acetic "	
B. Oleics	3.	Prismatic crystals.	Undetermined.
	4.	Needle "	
C. Other acids	5.	Oxalic acid.	
	6.	Tartaric "	
	7.	Citric "	
	8.	Malic "	
	9.	Aconitic[1] "	

These preliminary examinations indicate that the given acids are present in the following order by proportion:

Aconitic, citric, malic, oleic, formic, with decreasing amounts of the others, terminating with mere traces of oxalic and acetic acids.

For want of material the researches will stand over until next season for completion.

[1] See Parsons, this Journal **4**, on Aconitic Acid in Sorghum.

THE WILEY "HONEY" LIE

A SCIENTIFIC PLEASANTRY

DOCUMENTS IN EVIDENCE

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SOCIETAS SCIENTIARUM LODZIENSIS
WYDZIAŁ III
SECTIO III

SOCIETATIS SCIENTIARUM LODZIENSIS ACTA CHIMICA

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EUGENIUSZ MICHALSKI

ŁÓDŹ 1956

ЛЕНИНГРАДСКИЙ ОРДЕНА ЛЕНИНА ГОСУДАРСТВЕННЫЙ
УНИВЕРСИТЕТ имени А. А. ЖДАНОВА

СБОРНИК ТЕКСТОВ ПО ХИМИИ С МЕТОДИЧЕСКИМИ УКАЗАНИЯМИ И ЗАДАНИЯМИ ПО РУССКОМУ ЯЗЫКУ ДЛЯ СТУДЕНТОВ-ИНОСТРАНЦЕВ

СОСТАВИТЕЛИ
В. М. МАТВЕЕВА, Г. Н. ПАРИЛОВА

ИЗДАТЕЛЬСТВО ЛЕНИНГРАДСКОГО УНИВЕРСИТЕТА
1962

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